

REMARKS

Claims 1-4, 6-13 and 17 are pending. By this Amendment, Claim 5 is canceled without prejudice or disclaimer and the subject matter recited therein incorporated into Claim 1 by amendment. Because support for the claim amendments is provided in the originally filed application, Applicants respectfully submit no new matter is presented herein.

Entry of Response is Proper

Entry of this Amendment is proper under 37 C.F.R. §1.116 since the amendments: (a) place the application in condition for allowance for the reasons discussed herein; (b) do not raise any new issues requiring further search and/or consideration on the part of the Examiner since Claim 1 is amended merely to incorporate subject matter previously recited in now canceled Claim 5, which the Examiner previously considered; (c) satisfy a requirement of form asserted in the previous Office Action; (d) do not present any additional claims without canceling a corresponding number of finally rejected claims; and (e) place the application in better form for appeal, should an appeal be necessary. The Amendment is necessary and was not earlier presented because it is made in response to objections raised in the Final Rejection. Entry of the Amendment is thus respectfully requested.

Claim Rejections – 35 U.S.C. §103

Claims 1-3, 9-13 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admission of Prior Art (AAPA) in view of any one

of U. S. Patent No. 3,956,014 to Landsman et al. (Landsman); U. S. Patent No. 4,568,442 to Goldsmith, and Japanese Publication JP 06-44984 (JP '984).

Applicants respectfully traverse the rejections for the following reason(s).

Claim 1 recites a method for producing a membrane-electrode structure including, among other steps/features, *wherein the hydrophilic layer and the electrode catalyst layer are formed using a ratio of a weight of the ion conducting material contained in the electrode catalyst layer to a weight of the ion conducting material in the hydrophilic layer that is set within a range of 1.0 to 1.4.* Such a feature was previously recited by Claim 5.

Since the above-cited rejection does not include Claim 5, Applicants respectfully submit that the Office Action admits that the cited combination of the AAPA and any one of Landsman, Goldsmith, and JP '984, either alone or in any combination thereof, fails to teach or suggest the feature/step recited by Claim 5 (which is now recited by Claim 1).

To establish *prima facie* obviousness, each and every feature of a rejected claim must be taught or at least suggested by the applied art of record. See M.P.E.P. §2143.03.

As explained above, the AAPA and any one of Landsman, Goldsmith and JP '984, alone or in any combination thereof, fail to teach or suggest the step/feature *wherein the hydrophilic layer and the electrode catalyst layer are formed using a ratio of a weight of the ion conducting material contained in the electrode catalyst layer to a weight of the ion conducting material in the hydrophilic layer that is set within a range of 1.0 to 1.4.* Such a step, among

others, is recited by Claim 1. Therefore, Applicants respectfully submit that Claim 1 is not rendered obvious in view of the AAPA and any one of the Landsman, Goldsmith, and JP '984 combination, and should therefore be deemed allowable.

Claims 2-13 and 17 depend, directly or indirectly, from Claim 1. It is respectfully submitted that these claims are allowable for at least the same reason(s) Claim 1 is allowable, as well as for the additional subject matter recited therein.

Applicants respectfully request withdrawal of the rejections.

Claims 1-13 and 17 are rejected under 35 U.S.C. §103(a) as being unpatentable over the AAPA in view of U.S. Patent No. 4,104,197 to Heffler. Applicants respectfully traverse the rejection for the following reason(s).

As noted above, Claim 1 recites a method for producing a membrane-electrode structure including, among other steps/features, *wherein the hydrophilic layer and the electrode catalyst layer are formed using a ratio of a weight of the ion conducting material contained in the electrode catalyst layer to a weight of the ion conducting material in the hydrophilic layer that is set within a range of 1.0 to 1.4*. Such a feature was previously recited by Claim 5.

The ratio of the weight of the ion conducting material contained in the electrode catalyst layer to the weight of the ion conducting material contained in the hydrophilic layer is set with the range of 1.0 to 1.4. The discussed feature makes it possible to keep the balance of water retention between the electrode catalyst layer and the diffusion electrode so that excellent adhesiveness between

the electrode catalyst layer and the diffusion electrode is obtained. See page 7, line 16 to page 8, line 2; and page 25, line 27 to page 25, line 22 of the instant application.

As noted above, the Office Action admits that the AAPA, Landsman, Goldsmith and JP '984 fail to teach or suggest the feature the hydrophilic layer and the electrode catalyst layer are formed using a ratio of a weight of the ion conducting material contained in the electrode catalyst layer to a weight of the ion conducting material in the hydrophilic layer that is set within a range of 1.0 to 1.4.

However, the Office Action asserts that Heffler teaches such a feature. In particular, in explaining the basis for rejecting Claim 5, the Office Action asserts that Heffler discloses that for the production of the working layer 2 (hydrophilic layer): 35g of activated carbon with a particle size of 0.5 microns and the applied Pt catalyst are used and they amount to about 10% by wt, additionally about 18% wt PTFE and 17% wt polyethylene in 200 ml hexane is used. The Office Action cites column 2, lines 51-60 for supposedly teaching the feature recited in Claim 5.

Applicants respectfully disagree with that which is asserted by the Office Action.

Applicants respectfully submit that the cited passage of Heffner specifically teaches:

For the production of the working layer 2 containing the catalyst about 35 g activated carbon powder with a particle size of 0.5 microns and the applied platinum catalyst, amounting to about 10% by weight, are stirred with about 18% by weight polytetrafluorethylene and about 17% by weight polyethylene in 200 ml hexane and filtered off. The pulp is pressed in a filter press mold

to a compact solid body with a layer size of 100 cm², for example, and a thickness of 20 mm, and from this body are cut skins of about 1 mm thickness which are rolled down to a thickness of about 0.6 mm.

Then the two pre-rolled layers are superposed and rolled together to a final thickness of about 0.5 mm. The electrode thus formed is sintered under nitrogen for about 30 minutes at 165° C and under a pressure of 100 p/cm².

Applicants respectfully submit that Heffner is totally silent as to teaching or even suggesting the feature of the hydrophilic layer and the electrode catalyst layer being formed using a ratio of a weight of the ion conducting material contained in the electrode catalyst layer to a weight of the ion conducting material in the hydrophilic layer that being **set within a range of 1.0 to 1.4.**

As such, Applicants respectfully submit that Heffler, like the AAPA and the other cited references, fails to teach or suggest each and every feature recited by Claim 1.

To establish *prima facie* obviousness, each and every feature of a rejected claim must be taught or at least suggested by the applied art of record. See M.P.E.P. §2143.03.

As explained above, the AAPA and Heffler, alone or in any combination thereof, fail to teach or suggest the step/feature *wherein the hydrophilic layer and the electrode catalyst layer are formed using a ratio of a weight of the ion conducting material contained in the electrode catalyst layer to a weight of the ion conducting material in the hydrophilic layer that is set within a range of 1.0 to 1.4.* Such a step, among others, is recited by Claim 1. Therefore, Applicants

respectfully submit that Claim 1 is not rendered obvious in view of the AAPA and Heffler combination, and should therefore be deemed allowable.

Claims 2-13 and 17 depend, directly or indirectly, from Claim 1. It is respectfully submitted that these claims are allowable for at least the same reason(s) Claim 1 is allowable, as well as for the additional subject matter recited therein.

Applicants respectfully request withdrawal of the rejection.

Conclusion

In view of the foregoing, reconsideration of the application, withdrawal of the outstanding rejections, allowance of Claims 1-4, 6-13 and 17, and the prompt issuance of a Notice of Allowability are respectfully solicited.

Should the Examiner believe anything further is desirable in order to place this application in better condition for allowance, the Examiner is requested to contact the undersigned at the telephone number listed below.

In the event this paper is not considered to be timely filed, Applicants respectfully petition for an appropriate extension of time. Any fees for such an extension, together with any additional fees that may be due with respect to this paper, may be charged to counsel's Deposit Account No. 01-2300, **referencing docket number 101175.00040.**

Respectfully submitted,



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